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TS

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/249,895	02/16/99	BARKER	K CY-99006

LM01/0829

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EXAMINER

TRINH, D

ART UNIT

PAPER NUMBER

2739

DATE MAILED: 08/29/00

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

TP

Office Action Summary

Application No.
09/249,895

Applicant(s)
Barker et al.

Examiner
D. Trinh

Group Art Unit
2739



☒ Responsive to communication(s) filed on Jun 12, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-17 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 8-11, 16, and 17 is/are allowed.

☒ Claim(s) 1-7 and 12-15 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen (US 6,028,853) in view of in view of Fang (US 4,099,121) and Campana, Jr (US 5,745,532).

Regarding claims 1 and 12, Haartsen discloses that packet radio systems employing protocols to transmit packets more than once to enable data reconstruction, are popular (col 2, lines 16-21).

Haartsen differs from claims 1 and 12 of the present invention in that Haartsen does not specifically disclose that the reason to retransmit packets is due to rain fade. However, Fang discloses the technique of transmitting the same message more than once (ie. Time Diversity) in order to avoid fades due to anomalies such as precipitation in the comms path (col 1, lines 16-18 and 8-12).³⁸⁻⁴² As exemplified by Fang, the technique of transmitting the same message or packet of data more than once to minimize the effect of fading such as precipitation is a popular and very

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basic technique in data transmission. This technique is known specifically in the art as Diversity. Time Diversity occurs when a packet is transmitted at least twice (redundancy), separated by a time delay while using the same parameters. Since the environmental effect on transmission is different from one moment to the next during a fade event, the first packet might be so severely attenuated that it is either lost or become unusable upon arrival, while the duplicate packet traveling some time behind the first might arrive untouched. The receiver can then reconstruct the original transmission by using this untouched packet. Obviously, without duplicate packets, packets that are affected by fade might result in poor or unusable data. Therefore, to one of ordinary skill in the art, it would have been obvious to use Time Diversity, a basic comms technique, to increase data integrity and minimize transmission errors during rain fade in the system disclosed by Haartsen.

The combination of Haartsen and Fang differs from claims 1 and 12 of the present invention in that this combination does not specifically disclose that the time delay between packet transmissions is related to a rain fade event. However, Campana, Jr. discloses a system and method for transmission that is subject to fading by sending a first and second streams with the second stream being delayed by a time delay equal to or greater than the fading interval (Abstract). One of the advantages of this technique, obviously, is that the second stream would have a better chance of being received unharmed by the fade because this stream is sent after the fade. If the first stream is lost or damaged by the fade, the receiver can still use the second one to reconstruct the transmission. By specifying the delay between the streams to be greater than or

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equal to the fade event, one can be more certain that any data transmitted after the fade event will have a better chance of arriving safely. Therefore, to one of ordinary skill in art, it would have been obvious to make the delay in the Time Diversity technique of the Haartsen-Fang system equal to the fade event, as taught by Campana, Jr., to increase transmission quality because the second packets are less likely to be affected by the fade.

Regarding claims 2 and 5, Fang discloses a satellite (Fig 1).

Regarding claims 3 and 6, Haartsen discloses an RF system (Abstract).

Regarding claims 4 and 14, Haartsen discloses using error-correction for transmit and receive (col 12, lines 46-51 and 58-62).

Regarding claims 7, 13, and 15, the combination of Haartsen, Fang, and Campana, Jr. differs from claims 7, 13, and 15 of the present invention in that this combination does not specifically disclose that the number of error correction bits is configurable. However, Examiner takes official notice that forward error correction is a well-known technique that is frequently used to minimize data hits in poor or noisy environment. The degree of correction depends on the environment, data rate, and error tolerance. Therefore, it would have been obvious for one of ordinary skill in the art to vary the correction level to meet his or her required data rate and tolerance, in order to achieve a desired signal quality in a given environment.

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Response to Arguments

3. Applicant's arguments filed on June 12, 2000 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

4. Claims 8-11 and 16-17 are allowed.

Conclusion

5. Any inquiry concerning this communication from the examiner should be directed to D. Trinh whose telephone number is (703) 306-5620. The examiner can normally be reached on Monday through Friday from 8:00 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen, can be reached on (703) 308-5340. The fax number for the organization where this application or proceeding is assigned is (703) 308-6296.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

D. Trinh



August 18, 2000



HUY D. VU
PRIMARY EXAMINER